## JOHN DEERE POWER SYSTEMS

EXECUTIVE ORDER U-R-004-0551 New Off-Road Compression-Ignition Engines

Pursuant to the authority vested in the Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-14-012;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engines and emission control systems produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)		
2018	JJDXL04.5315	4.5	Diesel	8000		
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION			
Electronic Control Module, Exhaust Gas Recirculation, Selective Catalytic Reduction-Urea, Electronic Direct Injection, Turbocharger, Charge Air Cooler, Oxidation Catalyst, Ammonia Oxidation Catalyst			Loaders, Tractor, Dozer, Pump, Compressor, Generator Se Other Industrial Equipment			

The engine models and codes are attached.

The following are the exhaust certification standards (STD) and certification levels (CERT) for hydrocarbon (HC), oxides of nitrogen (NOx), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kw-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

RATED POWER CLASS	EMISSION STANDARD CATEGORY		EXHAUST (g/kw-hr)					OPACITY (%)		
			NMHC	NOx	NMHC+NOx	co	PM	ACCEL	LUG	PEAK
56 ≤ kW < 130	Tier 4 Final	OPTIONAL STD	0.19	0.40	N/A	5.0	0.02	N/A	N/A	N/A
		CERT	0.02	0.33		0.1	0.02			

**BE IT FURTHER RESOLVED:** That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

**BE IT FURTHER RESOLVED:** That for the listed engine models, the manufacturer has complied with the more stringent set of standards from the various power categories in conformance with Section 1039.230 (e) of the "California Exhaust Emission Standards and Test Procedures for New 2011 and Later Tier 4 Off-Road Compression Ignition Engines, Part I-D" adopted October 20, 2005 and last amended October 25, 2012.

Engines certified under this Executive Order must conform to all applicable California emission regulations.

This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.

Executed at El Monte, California on this

day of August 2017.

Annette Hebert, Chief

Emissions Compliance, Automotive Regulations and Science Division

## 12/26/2017

## F0#: U-R-004-0551 A Hachment: Page 10f1

## **Engine Model Summary Form**

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Engine category:	Nonroad Cl							
EPA Engine Family:	JJDXL04.5315				4			
Mfr Family Name:	350HCG							
Process Code:	Running Change							
			4. Fuel Rate:	5, Fuel Rate:	6. Torque (Nm)	7. Fuel Rate:		9. Emission Control
		3. kW@RPM	mm/stroke@peak kW	(kg/hr)@peak kW	@RPM	mm/stroke@peak	8. Fuel Rate:	Device Per
1. Engine code	2. Engine Model	(SAE Gross)	(for diesel only)	(for diesels only)	(SEA Gross)	torque	(kW/hr)@peak forque	SAE J1930
4045HAC05A	4048	104/6/2200	100.9(02200	22.6(\$2200	540(2)1800	113.7() 1600	10.5@1600	EBIT OG SCRC NHOOD DETTE CAC ECM
4045HAC05B	4045	86(0:7200	84.6(5)2200	19回2200	508@1600	105.8@1600	17.3(0)1800	EGR OC SCRC NHOOC DELTG CAC ECM
4046HFCOMA	4045	104(50)200	100,000 2200	32.5(\$7700)	540@1600	113 7/m 1600	18.5@1600	ESP OC SCIPC NHOOC DELTO CAC BOM
4045HFC04B	4045	100@2400	96.2@2400	23.5@2400	540@1600	114.2@1600	18.6@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4646F4F004G	4045	93(2)2400	35.5(2400	21,7(22400	493(21600	103.1601800	16.8@1600	EGR OC SCRO NISOC SPTTC CAC ECM
4045HFC04D	4045	93@2200	90.8@2200	20.4@2200	536@1600	112.7@1600	18.4@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4048HFC04E	4045	86M2400	32.2002400	20.1(2400	481(01800	96.8(2)1000	15.8@1800	EGR OC SCRC NHOOD EFI TO GAC EGM
4046HFC04F	4045	86(02200	84.5@2200	19(8)2200	500(2)1600	105.8@1600	17.3@1600	EGR OG SCRC NHSOC DELTC CAC ECM
AGASHIFICING:	4045	TA02400	70.4(02400)	11.2(6)7400	391@1600	84.2601600	13.7(01000	EGR OC-SCRC NHOOD DFI TO DAD ECM
4045HFCD4H	4045	74(2)2400	70.4(0.2400)	17.2@2400	591@1600	84.2@1600	13.7@1600	EGR OC BORD NHISOD DFI TO DAD ECM
4045HFC041	4045	74(02000)	73 8602200	16.502200	427(\$1600	89.3@1800	14.001800 ×	EIRR DIS BORD NHOOD DE TO CAC EGM
4045HFC04J	4045	74@2200	73.5億2200	18.8(02200	427(0)1600	89.3/01600	14.6@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HFQ04K	4045	65002400	65 9m2400	15 5(0 2400	333(0)1600	72.2(0.1600	11.8(01000)	EIGH OC BORG NH300 DFI TO CAC ECM
4045HFCO4_	4045	63(82400	63.9(\$2400	15.0@2400	333@1600	72.2@1600	11.8@1600	EGR OC SCRO NH3DC DFITC CAC ECM
4045HFC04M	ATIAS	63/5/2200	64.282200	14 A (E) (2000)	363@1600	58,4531600	11,2801600	EGRI OC SCRO NHBOO DRI TO CAC BOM
4045HFC04N	4045	63@2200	64.2@2200	14.4@2200	363@1600	68.4@1600	11.2@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HFC04D	4045	110@2200	107.4002200	24.1(02200	540@1000	113.800 1000	18.841800	SGR OC SCRC HHIGE DFITG OAD SGM
4045HFG04A	4045	99@1800	115.1@1800	21.1@1600	\ /	1	\ /	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HF004B	40KS	80001000	92.6@1600	1749-1800				EGR OC BORG NAMED DIR TO CAS EGM
4045HFG04C	4045	67@1800	77.1@1600	14.1@1800	Y		V	EGR OC SCRC NH3OC DFI TC CAC ECM
4048FFG04D	4045	80(0)1500	108.7/2/1500	16.3(11800		N.		EDR OC SORC NIGOD DRY TO CAC EDM
4045HFG04E	4045	67@1500	90.8@1500	13.9@1500				EGR OC SCRC NH3OC DFI TC CAC ECM
4646HLV73	4045	99/02200	98.2652200	22@2200	540(0)1600	113.200 1600	18.5(0)1800	EDR OC SERC NHOOD DETTO CAD BOM
4045HLV75	4046	94(02200	93.4@2200	21@2200	519@1600	107.9@1600	17.0001600	EGR OC SCRC NH3OC DELTC CAC ECM
4045HLV75	4045	86(0)2400	B1 S(0)2400	19.9@2400	519@1600	107.9491600	17 666 1600	EGR DO RORO NHOOG OFF TO CAC BOM
4045HLV78	4045	94@2200	93.4(0)2200	21@2200	519(2)1600	107.9(51600	17.6@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HILV75A	4045	99/9/2000	00.8002200	21.7(0)2200	540(0)1600	719.7(0)1000	18.5(5,1500	EGRICIO SCRO MISIOCIDEI TO ONC EGM
4045HMC05A	4045	104@2200	102(32200	23/82200	540@1600	113@1600	18.5(0.1600)	EGR OC SCRC NHSDC DFLTC CAC ECM
4048HAR005B	4545	#682700	85(3)2200	19.2(62000)	-480@1600	101401600	16.4(\$1600	EGR OC BORD NH3DO DELTO DAD ECM
4045HP075	4045	94@2200	93.4@2200	21@2200	519@1600	107.9@1600	17.6@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HP075A	4045	90@2200	98.6(2)2200	21.7@2200	540(2)1600	113.7(0)1000	18.5@1600	EGR OC SCRC NHOOD DITTO OAC BOM
4045HPRNT14	4045	106@2400	99.6@2400	24.4@2400	577@1600	123.1@1600	20.1@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4648HTD08	4046	94(52)200	93.4(2)(2)(0)	21@4200	519(2)1600	107.9621800	17.0001000	SUR OC BORG MISIOS DIR TO DAG BOM

\* New rating added for running change